

Fact Sheet: Discharging wastewater from dental offices to the King County sewage system



King County

Department of
Natural Resources and Parks
Wastewater Treatment Division
Industrial Waste Program

January 2015

MISSION STATEMENT

The mission of the Industrial Waste Program is to protect the environment, public health, biosolids quality, and King County's regional sewerage system. We work cooperatively with our customers as we regulate industrial discharges, provide technical assistance, and monitor the regional sewerage system.

Introduction

This fact sheet provides information about discharge limits and other restrictions for all dental practices that discharge wastewater to the King County sewer system. King County has developed acceptance practices that dental practices can implement with minimal paperwork, while protecting the beneficial resources produced from wastewater treatment processes such as biosolids and reclaimed water. KCIW has successfully implemented these procedures since 2002.

Authority

All wastewater discharged by any company or facility located in the King County sewer service area, including dental practices, must adhere to County regulations. Regulations are designed to prevent businesses from discharging substances that can degrade the wastewater treatment process, harm workers or facilities, or impact surface water quality.

King County Code 28.84.060 and King County Industrial Waste Local Discharge Limits Public Rule PUT 8-13 (PR) provides the legal basis for accepting commercial wastewater to the King County sewer system (see Resources).

Most commonly, dental practices need to address the amounts of mercury and silver they discharge to the sewer system, and properly dispose of liquids



KCIW compliance investigator and local dentist inspect an amalgam separator.

that may be used for disinfection and cleaning (such as chemiclave solutions or glutaraldehyde).

What are the requirements for dental offices in King County?

Most dental practices that remove and or place amalgam must use best management practices and must install an ISO 11143 certified amalgam separator. ISO standards are developed by the International Standards Organization, a worldwide federation of national standards bodies. The ISO standards developed specifically for dental amalgam separators are designed to ensure that

**Best management practices
for dental practices, page 4**



In this fact sheet:

- *Regulatory authority*
- *Requirements for King County dental practices*
- *King County discharge limits for mercury and silver*
- *Three routes to compliance with discharge limits*
- *Best management practices*
- *Dental inspections*
- *Resources*

the separator removes at least 95 percent of waste mercury from the dental wastewater before the wastewater is discharged to sewer.

A small number of practices may choose the route of applying for a King County Dental Wastewater Discharge Permit and demonstrating compliance with King County's local discharge limits.

What are King County's local discharge limits for mercury and silver?

If an industrial user of the sewer system discharges less than 5,000 gallons of wastewater per day, the discharger must comply with local discharge limits for mercury of 0.2 milligrams per liter (mg/L) and, for silver, 3.0 mg/L. In the rare case of a dental office or facility discharging more than 5,000 gallons of wastewater per day (e.g. a university or technical school) the facility will have the more stringent discharge limits of 0.1 mg/L for mercury and 1 mg/L for silver.

How to meet local dental wastewater discharge limits - the routes to compliance:



There are three possible routes that dental practices may follow to comply with dental waste regulations, depending upon the type of practice:

Route 1: Use an ISO 11143 certified amalgam separator unit (ASU) and follow Best Management Practices (BMPs).

Route 2: Dental practices in compliance with King County local wastewater discharge limits may apply for Dental Wastewater Discharge Permits, follow BMPs and sample their wastewater for mercury and silver to demonstrate continued compliance.

Route 3: Certain specialty practices are exempt from the requirement to install an ASU or obtain a Dental Wastewater Discharge Permit and need only follow BMPs.

Note that all routes to compliance include following Best Management Practices or BMPs (see page 4). Route #1 is the most commonly used by general practice dental offices.



Route 1 to compliance with regulations: Use an ISO 11143 certified amalgam separator and follow Best Management Practices (BMPs).

To meet local wastewater discharge limits, the majority of King County general dentistry practices that place or remove dental amalgam will need to install an ISO 11143 certified amalgam separator unit (ASU) to remove metals including mercury and silver from their wastewater.

Selecting amalgam separator units:

- Separators must be ISO 11143 certified. Dental practices wishing to install amalgam separator units that are not ISO 11143 certified must apply for Dental Wastewater Discharge Permits (see Route #2).

- Practices must maintain a copy of the ISO 11143 certification paperwork.

Installing amalgam separators:

- Practices should install amalgam separators either at each chair, or in a central location that receives wastewater from all chairs (usually closer to the vacuum pump) where amalgam is removed or placed.
- Practices must maintain separators and dispose of wastes according to manufacturers' recommendations. In general, most amalgam separators require a minimum of annual replacement of filters or containment units. Several units may require more frequent maintenance.
- Dental practices must keep installation, maintenance, and disposal records on-site and available for review for three years.



Route 2 to compliance with regulations: Dental practices in compliance with King County local wastewater discharge limits may apply for Dental Wastewater Discharge Permits and follow BMPs.

Some practices may be able to demonstrate compliance by choosing to apply for a King County Dental Wastewater Discharge Permit in lieu of installing an ISO 11143 certified amalgam separator. In these cases, practices need to have KCIW Dental Wastewater Discharge Permits to ensure that they are meeting local wastewater discharge limits on a consistent basis.

KCIW may require practices with Dental Wastewater Discharge Permits to regularly collect and analyze wastewater samples and submit routine reports with those sample results.

To learn more about the application process for a Dental Wastewater Discharge Permit, visit our KCIW's Web pages, menu items Dental Waste and Fees (see Resources).



Route 3 to compliance with regulations: Certain practices need only follow BMPs.

KCIW will not require certain specialties and practices to install an amalgam separator or to apply for a Dental Wastewater Discharge Permit if they place or remove amalgam no more than ten days each year or limit their practice to one of the following specialties:

- orthodontics
- periodontics
- oral and maxillofacial surgery
- radiology
- oral pathology or oral medicine
- endodontic and prosthodontic practices that do not remove or place amalgam fillings as a service to their clients more than ten days each year

Specialties or dental practices that place or remove dental amalgam less than ten days each year do not need to install an amalgam separator or apply for a Dental Wastewater Discharge Permit to demonstrate compliance with the local dental wastewater discharge limits. However, in addition to following BMPs, each practice should be able to demonstrate, during a KCIW inspection, that it is one of the listed specialties and/or that it places or removes amalgam ten days or less each year.

Endodontists, prosthodontics or other practices (e.g. pediatric specialty) should be able to provide a record that includes the dates of each procedure that involves placing or removing dental amalgam for a recent year.

Best management practices (BMPs) for dental practices in King County sewer service area.

KCIW requires that all dental practices use BMPs for the amalgam wastes, spent fixer used in X-ray processing, and properly dispose of liquids that may be used for disinfection and cleaning (such as chemiclave solutions or glutaraldehyde) as a means of remaining in compliance with local wastewater discharge limits.

1. BMPs for amalgam wastes:

- Keep amalgam out of sinks and never rinse amalgam waste down the drain.
- Clean or replace chair-side traps on a regular schedule and properly dispose of amalgam waste.
- Clean vacuum pump filters regularly, according to the manufacturer's recommendations, and properly dispose of amalgam waste.
- Use line cleaners that minimize the dissolution of amalgam. Refrain from using bleach or other oxidizing line cleaners that can increase the leaching of mercury out of amalgam solids.
- Send amalgam wastes to a licensed treatment, storage, disposal, or recycling facility, also referred to as a TSDR facility.
- Maintain all amalgam separator units according to manufacturers' recommendations and keep maintenance and waste disposal records on site for a minimum of three years.

King County expects all dental practices to apply BMPs for amalgam wastes on an ongoing basis.

2. BMPs for properly handling spent fixer used in X-ray processing:

- Collect spent fixer and have it disposed of by a vendor that will recover the silver in it.

(OR)

- If practices prefer to treat the fixer on-site and dispose of it down the drain, they must remove the silver by installing two chemical recovery cartridges in a series. Cartridges must be sized and maintained according to the manufacturer's recommendations.

- Maintain all disposal or maintenance records on-site for three years.

King County expects all dental practices to apply BMPs for managing their spent fixer on an ongoing basis.

3. BMPs for use of cuspidors:

Practices may discharge wastewater from cuspidors directly to the County sewer system without having to route them through the amalgam separator provided that:

- During placement or removal of amalgam, practices use suction devices to evacuate waste and use cuspidors primarily as receptacle for patients when they rinse their mouths for refreshment
- Practices maintain in-line filters in cuspidors and handle all dental wastes, including waste amalgam particles according to current BMPs for dental office wastewater

4. BMPs for disinfection and cleaning liquids such as glutaraldehyde cold sterilant and chemiclave solutions:

- Cold sterilant solutions containing no more than four percent glutaraldehyde may be discharged to the County sewer system provided that they apply the following BMPs:
 - Use glutaraldehyde cold sterilant solution per manufacturers' directions,
 - Scrape wastes, particularly amalgam residues, from instruments prior to sterilization,
 - After discharging glutaraldehyde solution down the drain to the sewer system, flush with several gallons of water to prevent the solution from remaining in the sink trap.
- Spent chemiclave solution should not be put down sewer. Send these wastes to a licensed TSDR facility.

What can dental practices expect during an inspection?

KCIW may inspect dental offices in the King County sewer service area for compliance with its regulations. Inspectors may schedule inspections with dental practices or may visit without prior notice.

KCIW will not do additional inspections of dental practices certified by the EnviroStars Program of the Local Hazardous Waste Management Program in King County, as they have already demonstrated compliance with these regulations, (For more about the EnviroStars Program, see Resources.)

During inspections, which normally take less than one half hour, the inspector will:

- Look to see if the dental office has one of the following:
 - an ISO 11143 certified amalgam separator unit properly installed (see Route 1), and records of the units maintenance for the past three years, or
 - a valid Dental Wastewater Discharge Permit, (see Route 2), or
 - is an exempt specialty (see Route 3).
- Check to see that X-ray fixer is properly managed.
- Check to see that other hazardous wastes such as scrap amalgam, and certain disinfectants or cold sterilent solutions are being disposed of properly.
- Check records such as:
 - receipts or other documentation for equipment maintenance, and,
 - solid amalgam waste and liquid hazardous waste removal records
- Answer any questions practices may have about maintaining compliance

Inspection follow-up:

KCIW follows up on inspections when practices do not practice the minimum BMPs or have the required paperwork. A typical inspection follow-up would include the completion of an

inspection report and an evaluation of the practice's compliance. If the practice is in compliance, there will be no further action.

Inspectors may note problems during a visit, such as the absence of an amalgam separator, or lack of records documenting maintenance of an approved amalgam separator or proper disposal of hazardous waste products. If a KCIW inspector notes any problems at a dental office, they may require that the practice apply for and meet the requirements of a King County Dental Wastewater Discharge Permit.

Enforcement Response Plan:

If practices do not correct problems, KCIW may proceed using its Enforcement Response Plan. The goals of this plan are to:

- Correct violations as soon as possible.
- Treat all industrial dischargers equitably
- Eliminate any economic advantage to a business for not complying
- Recover costs caused by violations

Resources

Contacting KCIW:

King County Industrial Waste Program
201 S. Jackson St., Room 513

Seattle, WA 98104-3855

Ph: 206-477-5300 or TTY: 711

Fax: 206-263-3001

info.kciw@kingcounty.gov

www.kingcounty.gov/industrialwaste

Regulations:

King County Code 28.84.060: www.kingcounty.gov/council/legislation/kc_code.aspx

King County Industrial Waste Local Discharge Limits
Public Rule PUT 8-13 (PR): www.kingcounty.gov/operations/policies/rules/utilities/put8131pr.asp

Manage Dental Waste, Washington State

Department of Ecology: http://www.ecy.wa.gov/mercury/mercury_dental_bmps.html

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Available on KCIW's Web pages (or contact our office for alternate formats):

Easy link: www.kingcounty.gov/industrialwaste

Use this easy link and follow the menu on our main web page to reach all KCIW web pages below.

Overview of KCIW's dental waste program - discharging dental wastewater to the King County sewage system:

www.kingcounty.gov/environment/wastewater/IndustrialWaste/GettingDischargeApproval/Dental.aspx

KCIW fact sheets on the web

www.kingcounty.gov/environment/wastewater/IndustrialWaste/TechAssist/FactSheets.aspx

Includes:

- Discharging industrial wastewater to the King County sewer system; King County Wastewater Discharge Limits.

Other resources

Waste Directory Yellow Book, by the Local Hazardous Waste Management Program in King County - The Waste Directory tells what to do with each waste type and lists vendors that will handle each.

www.lhwmp.org/home/YellowBook/material_detail.aspx?ItemID=BNbCVyQPRjQ%3d

EnviroStars Program of the Local Hazardous Waste Management Program in King County:

www.lhwmp.org/home/EnviroStars/index.aspx



Creating Resources from Wastewater

**Alternate Formats Available
Voice: 206-477-5300 or TTY Relay: 711**